

REMARKS

Favorable reconsideration of this application, as presently amended and in light of the following discussion, is respectfully requested.

Claims 1, 2, 6, 14, 18-22, and 30 are currently pending. Claim 1 has been amended; Claims 3-5, 7-13, 15-17, and 24 have been canceled without prejudice; and Claim 30 has been added by the present amendment. The changes and additions to the claims are supported by the originally filed specification and do not add new matter.

In the outstanding Office Action, Claims 1, 2, 3, and 22 were rejected under 35 U.S.C. § 102(e) as being anticipated by U.S. Patent No. 6,080,970 to Yoshida et al. (hereinafter “the ‘970 patent”); and Claims 1-22 and 24 were rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 6,072,162 to Ito et al. (hereinafter “the ‘162 patent”) in view of U.S. Patent No. 6,242,719 to Kano et al. (hereinafter “the ‘719 patent”), and either U.S. Patent No. 5,118,983 to Morita et al. (hereinafter “the ‘983 patent”) or U.S. Patent No. 4,536,645 to Mio et al. (hereinafter “the ‘645 patent”).

Applicants wish to thank the Examiner for the interview granted Applicants’ representative on April 8, 2004, at which time Claim 1 was discussed. In particular, the disclosure of the claimed thicknesses by the ‘983 patent and the positioning of the heating resistor elements disclosed in the ‘970 patent were discussed. However, no agreement was reached pending the Examiner’s further consideration of the claims upon formal submission of a response to the outstanding Office Action.

Amended Claim 1 is directed to a ceramic heater to be used in the semiconductor industry, comprising: (1) a disc-form ceramic substrate having a heating surface and comprising a nitride ceramic or a carbide ceramic; (2) a resistance heating element comprising at least one circuit, the resistance heating element being arranged on *an outermost surface* of the ceramic substrate; and (3) an insulating covering deposited on the resistance

heating element. Further, Claim 1 recites that the resistance heating element is positioned on an opposite side of the heating surface. Claim 1 has been amended to recite that *the insulating covering comprises oxide glass with a thickness of 5 to 20 µm*, limitations previously recited in Claims 3, 4, 7, and 8. Accordingly, the changes to Claim 1 are supported by the originally filed specification and do not add new matter.¹

The ‘970 patent is directed to a wafer heating apparatus comprising a heating resistor 4 *buried* in a ceramic substrate 2. However, Applicants respectfully submit that the ‘970 patent fails to disclose a resistance heating element arranged on *an outermost surface* of a ceramic substrate, as recited in amended Claim 1. Accordingly, Applicants respectfully submit that that rejection of Claim 1 (and dependent Claims 2 and 22) as anticipated by the ‘970 patent is rendered moot by the present amendment to Claim 1. Further, Applicants respectfully submit that the rejection of Claim 3 as anticipated by the ‘970 patent is rendered moot by the present cancellation of that claim.

Regarding the rejection of Claim 1 under 35 U.S.C. § 103, the Office Action asserts that the ‘162 patent discloses everything in Claim 1 with the exception of the ceramic substrate being disc-shaped and an insulating covering deposited on the heating element, and relies on the ‘719 patent and either the ‘983 patent or the ‘645 patent to remedy those deficiencies.

The ‘162 patent is directed to a device for heating a substrate and includes heating elements 14 and a heat diffusion plate 11. However, as admitted in the Office Action, the ‘162 patent fails to disclose a disc-form ceramic substrate and the insulating covering recited in amended Claim 1.

¹ See Figure 2 and original Claims 3, 4, 7, and 8.

The ‘719 patent is directed to a multi-layered ceramic heater including a support substrate 2, a heater pattern 3 adhered to the surface of the support substrate 2, and a protective layer 4, *composed of the same material as the support substrate 2* and covering the heater pattern 3.² Accordingly, Applicants respectfully submit that the ‘719 patent fails to disclose the insulating covering recited in Claim 1, which comprises oxide glass, i.e., material different from the material of the claimed ceramic substrate.

The ‘983 patent is directed to a thermionic electron source comprising a ceramic substrate 1, a high density resistive film 2, and a vitreous protective coating layer (insulating protective film) 3. However, Applicants respectfully submit that the ‘983 patent fails to disclose *an insulating covering comprising oxide glass with a thickness of 5 to 20 µm*, as recited in amended Claim 1. In particular, contrary to the assertion in the Office Action, the drawings in the ‘983 patent are not drawn to scale and the relative or absolute thickness of the layers shown therein cannot be inferred.

The ‘645 patent is directed to a solid body heating unit comprising a sheet-like base 1, a refractory layer 2, an electroconductive layer 3, and an electrically insulative protective layer 6. Further, the ‘645 patent discloses that the protective layer 6 is made of silicon resin or alumina. However, Applicants respectfully submit that the ‘645 patent fails to disclose an insulating covering comprising oxide glass with a thickness of 5 to 20 µm, as recited in amended Claim 1.

Thus, no matter how the teachings of the ‘162, ‘719, ‘983, and ‘645 patents are combined, the combination does not teach or suggest *an insulated covering deposited on a resistance heating material, wherein the insulating covering comprises oxide glass with a thickness of 5 to 20 µm*, as recited in amended Claim 1. Accordingly, Applicants respectfully

² See ‘719 patent, column 4, lines 44-51.

submit that the rejection of Claim 1 (and all associated dependent claims) is rendered moot by the present amendment to Claim 1.

Thus, it is respectfully submitted that independent Claim 1 (and all associated dependent claims) patentably define over any proper combination of the '970, '162, '719, '983, and '645 patents.

The present amendment also sets forth new Claim 30 for examination on the merits. New Claim 30, which depends from Claim 1, recites that the ceramic heater further comprises an insulating layer on the opposite side of the heating surface, wherein the resistance heating element is positioned on the insulating layer. New Claim 30 is supported by the originally filed specification and does not add new matter.³ Further, based on the asserted allowability of Claim 1, Applicants respectfully submit that new Claim 30 patentably defines over the cited references.

Consequently, in view of the present amendment and in light of the above discussion, the outstanding grounds for rejection are believed to have been overcome. The application as amended herewith is believed to be in condition for formal allowance. An early and favorable action to that effect is respectfully requested.

Respectfully submitted,

OBLON, SPIVAK, McCLELLAND,
MAIER & NEUSTADT, P.C.

Customer Number
22850

Tel: (703) 413-3000
Fax: (703) 413-2220
(OSMMN 08/03)

Kurt M. Berger

Masayasu Mori
Attorney of Record
Registration No. 47,301
Kurt M. Berger, Ph.D.
Registration No. 51,461

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³ See, e.g., page 8, lines 13-25 of the specification.